MANAV RACHNA UNIVERSITY

DEPARTMENT OF SCIENCES

"End Term Examination, Jan-June-2023"

SEMESTER	**II**	**DATE OF EXAM**	25.05.2023
SUBJECT NAME	**Calculus & Linear Algebra**	**SUBJECT CODE**	**MAH101B-T**
BRANCH	**CSE(CSTI, CDFS)**	**SESSION**	II
DURATION	**3 hrs (01:00 – 4:00 PM)**	**MAX. MARKS**	**100**
PROGRAM	**B. Tech.**	**CREDITS**	**4**
NAME OF FACULTY	**Dr. Kamlesh Kumar, Ms. Khushali Tyagi**	**NAME OF COURSE COORDINATOR**	**Dr. Kamlesh Kumar**

Note: All questions are compulsory.

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Find the radius of curvature at given point of the following curve, $\sqrt{x}+\sqrt{y}=\sqrt{a}$ at $\left(\frac{a}{4},\frac{a}{4}\right)$.	5	CO1	BT2	1.1.1 2.1.1 3.2.2
	1(B)	Verify Euler's theorem for the functions: $f(x,y)=ax^2+2hxy+by^2$.	5	CO1	BT2	1.1.1 2.1.1 3.2.2
PART-B	2(A)	Evaluate the following integrals by changing the order of integration $\int_0^1\int_{4y}^4 e^{x^2}dx\,dy$.	5	CO2	BT3	1.1.1 2.1.1 3.2.2
	2(B)	Evaluate $\iint(a^2-x^2-y^2)dx\,dy$ over the semi circle $x^2+y^2=ax$ in the positive quadrant by changing to polar co-ordinates.	5	CO2	BT3	1.1.1 2.1.1 3.2.2
PART-C	3(A)	Show that the set S= $\{(1,1,0),(0,1,1),(1,0,1)\}$ is a basis of $\mathbb{R}^3(\mathbb{R})$.	10	CO3	BT3	1.1.1 2.1.1 3.2.2
	3(B)	Determine all solutions of the following system of equations in $\mathbb{R}$ $x_1-4x_2-x_3+x_4=3$ $2x_1-8x_2+x_3-4x_4=9$ $-x_1+4x_2-2x_3+5x_4=-6$	10	CO3	BT3	1.1.1 2.1.1 3.2.2

	3(C)	Show that the reduced row echelon form of the matrix $A = \begin{pmatrix} 1 & 0 & 2 & 0 & 2 \\ 1 & 1 & 3 & 3 & -1 \\ 3 & 0 & 6 & 1 & -1 \\ -2 & -1 & -5 & -3 & -1 \\ 3 & 0 & 6 & 1 & -1 \end{pmatrix}$ is the matrix $\begin{pmatrix} 1 & 0 & 2 & 0 & 2 \\ 0 & 1 & 1 & 0 & 18 \\ 0 & 0 & 0 & 1 & -7 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{pmatrix}$.	10	CO3	BT4	1.1.1 2.1.1 3.2.2
	3(D)	Compute the rank and the inverse if it exists of the following matrix by elementary row method $A = \begin{pmatrix} 0 & 2 & 4 \\ 2 & 4 & 2 \\ 3 & 3 & 1 \end{pmatrix}$	10	CO3	BT4	1.1.1 2.1.1 3.2.2
PART-D	4(A)	Let $A = \begin{pmatrix} -9 & 4 & 4 \\ -8 & 3 & 4 \\ -16 & 8 & 7 \end{pmatrix}$ be a matrix of order 3×3 over $\mathbb{R}$. Find the characteristic polynomial of A. Check whether the matrix A is diagonalizable or not with the concept of algebraic multiplicity and geometric multiplicity of eigen values.	15	CO4	BT3	1.1.1 2.1.1 3.2.2
	4(B)	Check whether the following matrix over the field of real number $\mathbb{R}$ is diagonalizable or not by finding the basis of eigen vectors. $\begin{pmatrix} 5 & -6 & -6 \\ -1 & 4 & 2 \\ 3 & -6 & -4 \end{pmatrix}$.	15	CO4	BT3	1.1.1 2.1.1 3.2.2
	4(C)	Find the orthogonal basis for $\langle S \rangle$ using the Gram-Schmidt process to given subset $S = \{(1, 0, 1, 0), (1, 1, 1, 1), (0, 1, 2, 1)\}$ of the standard inner product space $\mathbb{R}^4$.	10	CO4	BT4	1.1.1 2.1.1 3.2.2

********** END **********

MANAV RACHNA UNIVERSITY

MANAV RACHNA UNIVERSITY

DEPARTMENT OF SCIENCES

"End Term Examination, Jan- June 2023"

SEMESTER	**II**	**DATE OF EXAM**	25.05.2023
SUBJECT NAME	**DISCRETE MATHEMATICS**	**SUBJECT CODE**	**MAH104B-T**
BRANCH	**CSE**	**SESSION**	II
DURATION	**3:00 Hrs.** (01:00 – 04:00)	**MAX. MARKS**	**100**
PROGRAM	**B.Tech.**	**CREDITS**	
NAME OF FACULTY	**Dr. Ramapati Maurya, Dr. Advin Masih, Dr. Ankita Panday, Ms. Pooja , Ms. Khusali.**	**NAME OF COURSE COORDINATOR**	**Dr. Ramapati Maurya**

Note: *All questions are compulsory.*

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	Q1(A)	Show that the set of all positive divisors of 70 form a lattice.	5	CO1	BT2	PI 1.1.1 PI 2.1.1
	Q1(B)	Show that the inclusion relation $\subseteq$ is a partial ordering on the power set of a set A.	5	CO1	BT3	PI 1.1.1 PI 2.1.1
PART-B	Q2(A)	Show that $\sim q \vee p \equiv p \rightarrow q$.	5	CO2	BT3	PI 1.1.1 PI 2.1.1
	Q2(B)	Prove the validity of the following argument "If Roli Has completed MCA or MBA, then she is assured of a good job. If Roli is assured of a good job, she is happy. Roli is not happy. So Roli has not completed MBA.	5	CO2	BT3	PI 1.1.1 PI 2.1.1
PART-C	Q3(A)	Let G = {0,1,2,3,4,5}. Find the orders of elements of the Group G under the binary operation addition modulo 6.	8	CO3	BT4	PI 1.1.1 PI 2.1.1
	Q3(B)	Show that the set $S = \{1,2,3,4\}$, under the binary operation 'multiplication modulo 5' forms an abelian group. Also calculate the order of each element.	12	CO3	BT4	PI 1.1.1 PI 2.1.1

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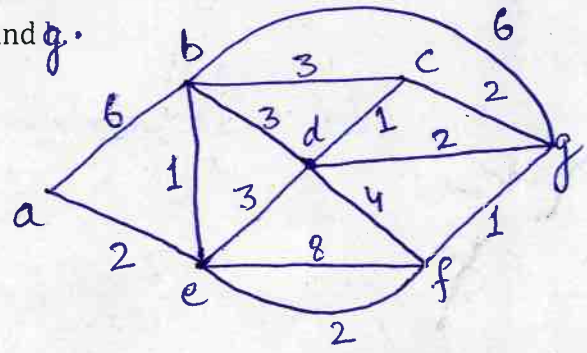
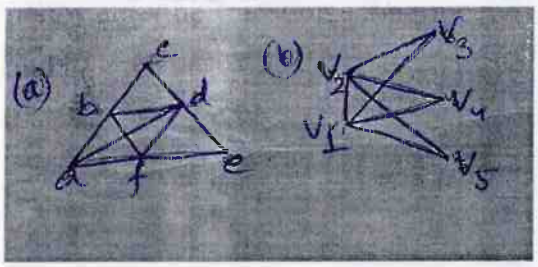
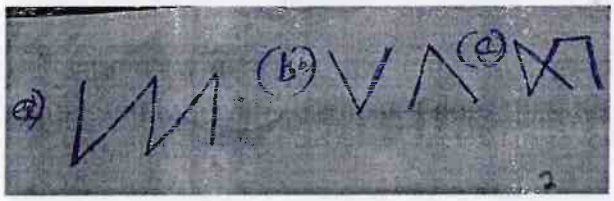
Q4(A)	Simplify the Boolean function $F(A,B,C,D) = \sum(0,1,2,3,4,5,7,6,8,9,11)$.	10	CO3	BT4	PI 1.1.1 PI 2.1.1
Q4(B)	For the Boolean expression $f = ABC + B\bar{C}D + \bar{A}BC$. (i) Make a truth table (ii) Simplify the same using the laws of Boolean algebra	10	CO3	BT3	PI 1.1.1 PI 2.1.1
Q5(A)	Apply Dijkstra's algorithm to the graph given below and find the shortest path between a and g. 	10	CO4	BT3	PI 1.1.1 PI 2.1.1
Q5(B)	Determine which of the following graphs contain an Eulerian circuit. If it does then find An Eulerian circuit. 	10	CO4	BT3	PI 1.1.1 PI 2.1.1
Q6(A)	Which of the following graphs are tree ? 	4	CO4	BT3	PI 1.1.1 PI 2.1.1
Q6(B)	Define minimal spanning tree. Describe Kruskal's algorithm and use this to find out the minimal spanning tree of the following graph.	10	CO4	BT3	PI 1.1.1 PI 2.1.1

PART-D

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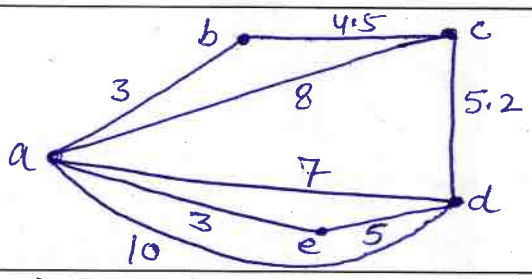
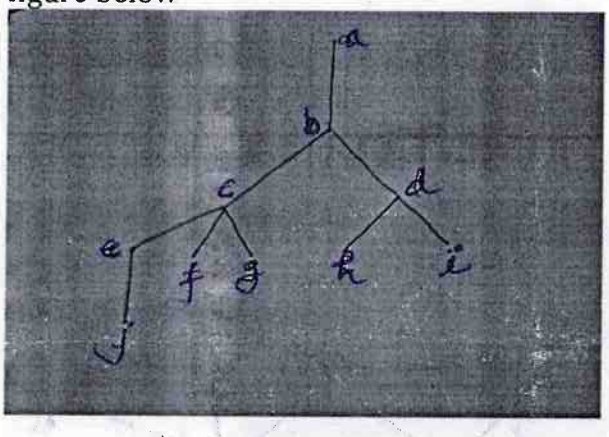


Q6(C)	Given the Tree with root at a as shown in figure below  (a) Find the parents of c and h (b) Find the children of d and e (c) Find the descendents of c and e (d) Find the siblings of f and h (e) Find the leaves (f) Find the internal vertices (g) Draw a subtree rooted at c	6	CO4	BT3	PI 1.1.1 PI 2.1.1

********** END **********

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MANAV RACHNA vidyaparikshat

MANAV RACHNA UNIVERSITY
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DEPARTMENT OF Computer Science and Technology

"End Term Examination, June-2023"

SEMESTER	**II**	**DATE OF EXAM**	05.06.2023
SUBJECT NAME	**Data Structures and Algorithms**	**SUBJECT CODE**	**CSH103B- T**
BRANCH	**CSE[CSTI, CDF, AIML] Robotics & AI**	**SESSION**	II
TIME	01:00 – 04:00 PM	**MAX. MARKS**	**100**
PROGRAM	**B. Tech**	**CREDITS**	**5**
NAME OF FACULTY	**Dr. Harsh Bhasin, Prof. Manpreet Kaur, Ms. Chandni, Dr. Yojna Arora, Mr. Aarsh Dhingra**	**NAME OF COURSE COORDINATOR**	**Dr. Harsh Bhasin**

***Note**: All questions are compulsory*

Manpreet Kaur

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	You need to develop a software for finding the shortest path from a person's home to Manav Rachna University. Which data structure would you prefer? Can you suggest the name of an algorithm to accomplish this task?	2	CO1	BT2	2.1.2
	1(B)	Which of the following takes lesser time, and why? a) Inserting element at the end of an array. b) Inserting element at the end of a linked list.	2	CO1,CO2	BT31	2.1.2
	1(C)	Can you apply Binary Search in an unsorted array? Give reason in support of your answer.	2	CO1	BT3	
	1(D)	In a doubly linked list, what is the complexity of a) insertion at the end b) Insertion at the beginning.	2	CO2	BT3	2.1.2
	1(E)	What is an abstract data type? Give example	2	CO1	BT2	2.1.2

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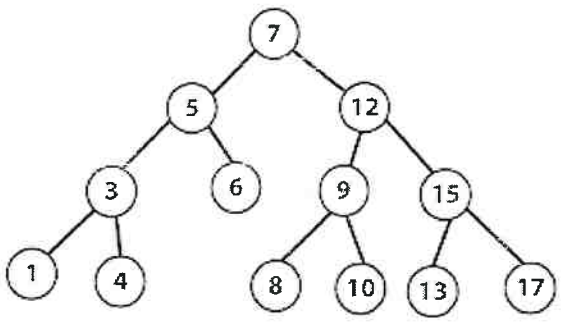
PART-B	**2(A)**	Write an algorithm to merge two given sorted arrays. What is the complexity of the algorithm?	5	CO1	BT2	2.1.2
	2(B)	Write an algorithm to insert an element at the a) beginning and b) end of a circular linked list.	5	CO2	BT2	2.1.2
	3(A)	a) Write an algorithm to reverse a string using Stacks. b) Convert the following expression to prefix and show each step: (a+ (b-(c/d))	20	CO3	BT2,BT3	2.1.2
PART-C	**3(B)**	a) Write an algorithm to implement stacks using a linked list. b) What is a doubly ended queue? Write an algorithm to insert and delete an element from the end from this data structure.	20	CO3	BT2,BT3	2.1.2
	4(A)	a) Write the inorder, preorder and post order traversal of the following tree.  b) Create an Binary Search Tree from the following numbers: 4, 1, 6, 2, 9, 10, 45, 78, 12, 90. i) Delete 2 from the above tree. ii) Insert 98 to the above tree.	20	CO4	BT2, BT3	2.1.2

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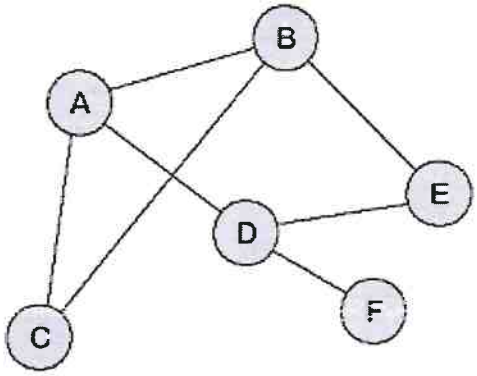
PART D	4(B)	a)What is the adjacency matrix and linked list representation of the following graph.  b) Write an algorithm for finding the shortest path using Prim's algorithm.	20	CO4	BT2,BT3	2.1.2

********** END **********

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MANAV RACHNA UNIVERSITY

DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

EVEN SEMESTER (JAN-JUNE2023)

END TERM EXAMINATION

COURSE NAME: Introduction to Standards, Frameworks and Key Technology Concept	COURSE CODE: CSH110B	CREDIT:5	MAX. MARKS:100	DURATION:3 Hours	DATE OF EXAM: 07.06.2023
PROGRAM: B.Tech - CSE		SEMESTER: 2nd (CSTI)			
FACULTY NAME: Mr. Sujeet		NAME OF COURSE COORDINATOR: Dr.Urmila			

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	What are the differences between top-down security and bottom-down security? Support your answer with the help of a suitable example.	2	CO1	L1	1.1.3
	1(B)	What are the benefits of ISO 27001 in the organization's information security? Provide a real-life scenario to support your answer.	2	CO1	L2	1.1.2
	1(C)	What are the benefits of COBIT5? Explain in detail with the help of a suitable example.	2	CO2	L2	1.1.3
	1(D)	What is the difference between the IDS and IPS in network security? Give a real life scenario to support your answer.	2	CO4	L3	1.1.3
	1(E)	Explain the different types of Security Risk Assessments. What are the differences between them?	2	CO3	L3	1.1.2
PART-B	2(A)	Briefly explain the steps involved in Security Auditing in Information security with the help of an example.	2	CO1	L4	2.1.1
	2(B)	What do you understand by the term PCI-DSS Compliance level and how many are there according to merchant?	4	CO2	L4	2.1.2
	2(C)	Write a short note on the following topics : 1. Firewall 2. Router 3. Switch 4. Anti-virus	4	CO4	L2	1.1.2
PART-C	3(A)	Briefly explain the term IPR. What are the different types of IPR? Support your answer with the help of a suitable example.	10	CO1	L2	12.1.1
	3(B)	An organization wants to perform a Security Risk Assessment in their organization and they want to know the various steps of Security Risk Assessment so they can prepare before the actual assessment.	10	CO3	L4	2.1.2
	3(C)	An organization has stepped into the Payment card Industry so what are the goals they need to achieve and what are the requirements to fulfill? Give a suitable example to support your answer them.	10	CO2	L3	2.1.2
	3(D)	Briefly explain the concepts of cryptography and their challenges. How many types of cryptography do we use in real life? Support your answer with the help of an example.	10	CO4	L2	2.1.2
PART-D	4(A)	What do you understand by the term BCP? How we can integrate cyber security with BCP in an organization? Support you answer with the help of case scenario.	10	CO2	L3	1.1.3
	4(B)	Explain the basic concepts in Software Development Security. What are the challenges faced in the process? Give a suitable example.	10	CO3	L3	1.1.2
	4(C)	What is the importance of network security in an organization? What are the latest developments in the field of network security technology?	10	CO3	L4	1.1.2
	4(D)	Briefly explain the various Risk Management Standards. Support your answer with the help of an example.	10	CO4	L1	2.1.1

END

MANAV RACHNA Vidyaparikshad

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DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

"End Term Examination, May-2023"

SEMESTER	**II**	**DATE OF EXAM**	7.06.2023
SUBJECT NAME	**AGILE SOFTWARE DEVELOPMENT**	**SUBJECT CODE**	**CSH106 B-T**
BRANCH	**CSE (CDFD Specialization)**	**SESSION**	II
DURATION	**3 HOURS** (01:00-04:00PM)	**MAX. MARKS**	**100**
PROGRAM	**B.TECH.**	**CREDITS**	**4**
NAME OF FACULTY	**Dr. Susmita Ray**	**NAME OF COURSE COORDINATOR**	**Dr. Susmita Ray**

Note: Part A, Part B, Part C: All questions are compulsory.

Manpreet Kaur

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Write two shortcomings of Waterfall Model	2	CO1	BT2	2.3.1
	1(B)	Give 2 examples of General Purpose Software application	2	CO1	BT1	2.3.1
PART-B	1(C)	What is the difference between V-Model and Classical Waterfall model	2	CO1	BT2	2.3.1
	1(D)	Give 2 examples of System Software	2	CO1	BT1	2.3.1

1(E)	Unix Operating system was developed in _____ Programming Language. Name the open source operating system software similar to Unix.	2	CO1	BT1	2.3.1
1(F)	Give 2 examples of internet browsing software.	2	CO1	BT1	2.3.1
1(G)	Write two characteristics of Agile Methodology	2	CO2	BT2	2.2.5
1(H)	Name 2 variants of Prototyping Model.	2	CO1	BT2	2.3.1
1(I)	Write two principles of Lean Methodology.	2	CO2	BT2	2.2.5
1(J)	Write the names of two Agile Frameworks.	2	CO2	BT2	2.2.5
2(A)	Compute the duration (in weeks) of Release of a product of 30 Agile Stories with an overall estimate of 175 Story Points which are to be implemented and delivered by an Agile team with a Velocity of 25 Story Points/Sprint. Assume Sprint duration of 2 weeks. What will be the estimated Release Date if you add 25% buffer time on the computed duration assuming a start date of development activities for product release as 1st June 2023?	5	CO5	BT3, BT3	11.3.2
2(B)	Explain Planning Poker Estimation Technique with a diagram.	5	CO5	BT2	11.3.2

PART-B

3(A)	Draw Parking Lot Diagram for the following scenario assuming the date as 10th May 2023 when the diagram is being reviewed: (i) Feature Area Name: Sales Forecasting, Feature Set Name: Prediction for Luxury cars, Chief Programmer: PD, No. of features: 6, Expected Date of Completion : August 2023, Percentage Completion : 30% (ii) Feature Area Name: Sales Forecasting, Feature Set Name: Prediction for sedan cars, Chief Programmer : SKM, No. of features: 4, Expected Date of Completion : October 2023, Percentage Completion : 0% (iii) Feature Area Name: Sales Analysis, Feature Set Name: Quarter wise Sales-Luxury Cars, Chief Programmer : AM, No. of features: 7, Expected Date of Completion : April 2023, Percentage Completion : 80% (iv) Feature Area Name: Sales Analysis, Feature Set Name: Quarter wise Sales-Sedan cars, Chief Programmer : NC, No. of features : 8, Expected Date of Completion : March 2023, Percentage Completion : 100%	5	CO4	BT4	4.3.3
3(B)	Explain Agile Planning Onion with a diagram. Identify the planning horizon for Agile team, Product Owner and Top Management.	5	CO5	BT2,BT3	11.3.1
4(A)	A product development team is following a blend of SCRUM Project Management practices and Extreme Programming (XP) Engineering Practices. Customer expects defect free delivery with high quality design. Which engineering practices of Extreme Programming the team should adopt to achieve the quality goals set by the customer? Explain briefly the engineering practices.	5	CO3	BT3, BT2	2.2.5
4(B)	What is the purpose of establishing Definition of Done (DoD) in an Agile software development framework? Which are the levels at which DoD is framed? Furnish a DoD checklist at Agile Story level	5	CO3	BT3, BT2, BT2	2.2.5

PART-C

5(A)	Justify the following statement: "SCRUM Team uses Burndown Charts for Progress tracking". For each of the three categories of Burndown Chart explain what needs to be plotted on X-Axis and Y-Axis.	4	CO5	BT3, BT2	2.2.5, 2.2.5
5(B)	(i) Draw the Burndown Chart for a working week with the following data of remaining effort in hours for the Estimated Effort and Actual Effort. Days | Day 0 | Day 1 | Day 2 | Day 3 | Day 4 | Day 5 Estimated | 320 | 256 | 192 | 128 | 64 | 0 Actual | 320 | 285 | 230 | 120 | 50 | 0 (ii) Provide analysis of the Burndown Chart.	6	CO5, CO5	BT3,BT4	11.3.2, 11.3.2
6(A)	State the principles and practices of Kanban. Map the Kanban principles and practices to Agile Manifesto principles.	3+3	CO4	BT2, BT4	2.2.5
6(B)	Draw Kanban Board for representing the visual workflow of implementation of following set of Agile Stories. Assume an iteration duration of 10 days and a team size of 8 members. Provide the snapshots of Kanban board on day 3 and day 8 of iteration . • Agile Story 1: As a customer of E-Commerce site, I should be able to browse product catalogue so that I can see the available products for purchase • Agile Story 2: As an Admin of E-Commerce site, I should be able to add new arrivals of product so that customers can purchase those products • Agile Story 3: As a customer of E-Commerce site, I should be able to track the delivery status of the items I purchased so that I know how soon the purchased items will be delivered to my address • Agile Story 4: As a customer of E-Commerce site, I should be able to add products to my shopping cart so that I can put together all items from my shopping list to the shopping cart	4	CO4	BT4	11.3.1
7(A)	During a Sprint, SCRUM Team had to spend lot of time in resolving build issues with a new open source build tool. After the Sprint is over, they need to discuss this in a meeting. In which	5	CO3, CO3	BT3, BT3	2.4.4

	meeting the team should discuss this? Which all topics should be discussed in this meeting and how the action items from this meeting will be handled ?				
7(B)	After the Sprint is over , SCRUM team needs to demonstrate the features of product increment to the Product Owner. In which meeting they should demonstrate it? How the Product Owner will evaluate the demonstration of Product Increment? Which topics are discussed in this meeting?	5	CO3, CO3, CO3	BT3, BT4, BT2	2.2.5
8(A)	In an Agile project team a developer playing a critical role had to go on leave just a few days before a major release of the product which the team was developing. However the absence of this developer did not impact the schedule and quality of delivery. The team adopted a set of good engineering practices. Which Agile framework the team adopted? Analyze the scenario and explain the specific engineering practice the team was following which enabled this smooth delivery in spite of the disruption.	5	CO3, CO3	BT3, BT4	2.2.5
8(B)	(i) Categorize each of the following Extreme Programming (XP) Practices into respective group: • Planning Game • Pair Programming • Test Driven Development • Refactoring (ii) State the benefit of each of the above practices and justify the benefit by stating the list of activities to support the respective practice.	5	CO3, CO3	BT2, BT4	2.2.5
9(A)	In SCRUM framework, who plays the role of Servant Leader? Analyze the responsibilities of this role to identify the ones which align to Servant Leadership role.	5	CO3, CO3	BT2, BT4	2.2.4, 2.2.4
9(B)	In the following list, identify the ones which can be categorized as Agile Soft Skills: • Dictatorship • Coaching • Negotiation • Self Leadership Justify by stating the qualities of the identified Agile Soft skills as how they meet the need of Agile Soft Skills	5	CO5, CO5	BT3, BT3	2.2.5

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MANAV RACHNA
Vidyanatariksha

MANAV RACHNA UNIVERSITY
Declared as State Private University vide Haryana Act 26 of 2014

DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY

"End Term Examination, Jan-June 2023"

SEMESTER	**II**	**DATE OF EXAM**	**07.06.2023**
SUBJECT NAME	**Python Programming**	**SUBJECT CODE**	**CSH108B-T**
BRANCH	**CSE-AIML /ROBOTICS&AI**	**SESSION**	**II**
TIME	**180 Minutes (01:00 -4:00)**	**MAX. MARKS**	**100**
PROGRAM	**B. TECH.**	**CREDITS**	**3**
NAME OF FACULTY	**Priyanka Gupta**	**NAME OF COURSE COORDINATOR**	**Deepanshi**

Note: All questions are compulsory.

Manpreet Kaur

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART A	Q1	Differentiate between compiler and Interpreter. Explain working of compiler and Interpreter in detail?	10	CO 1	BT1	5.2.1
PART B	Q2	What is nesting of function? Can a function call itself? Justify your answer with an example of factorial of a number.	10	CO2	BT2	5.2.1
PART-C	Q3(A)	What do you mean by feature scaling or data normalization? Explain some techniques for Feature scaling?	10	CO3	BT1	5.2.1
	Q3 (B)	Discuss about data transformation? How do you select the important features in your dataset?	5	CO3	BT1	5.2.1
	Q3(C)	What are the missing values? How do You handle missing values? **Give examples**	5	CO3	BT2	5.2.1
PART-C	Q4(A)	Explain outlier? How you detect outliers in your data?	5	CO3	BT2	5.2.1
	Q4(B)	Write short notes on the following (i) Permutation and Random Sampling (ii) String Manipulation	10	CO3	BT1	5.2.1
	Q4(C)	(i)You are given a list of strings how do you write it in a file call happy.txt (ii) Open that file and read 10 bytes from it .Print the position of the cursor. Now move 20 bytes from beginning then again print the	5	CO3	BT3	5.2.1

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	position of the cursor.				
Q5(A)	(i) Design a regression based model to find administer various dosages of a certain drug to patients and observe /predict how their blood pressure responds. (ii) Write a program to carry out logistic regression.	12	CO4	BT3	5.2.1
Q5(B)	(i) Why is Logistic Regression termed as Regression and not classification? (ii) Explain statistical modeling in Python.	8	CO4	BT2	5.2.1
Q5(C)	Consider a dataset below with different outlets of a company and their features like area, persons who work in the store, daily transactions and total earnings of each store. Answer the following questions	20	CO4	BT4	5.2.1

PART-D

Outlet ID	Area	No. of employees
1	1234	10
2	2341	11
3	3412	12
4	1111	16
5	2222	19
6	3333	21
7	4444	31
8	4321	41
9	2143	51
10	1024	10
11	2048	11
12	1000	10

i. Determine the lower and upper bound outliers for the number of employees available.
ii. Visualize the transactions feature to depict outliers.
iii. Identify any NULL values in the dataset and determine various ways to fill those NULL values.
iv. Create a new column earnings_status and classify it with following labels: (1) low sales (2) average sales (3) Huge sales

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DEPARTMENT OF SCIENCES

"End Term Examination, June-2023"

SEMESTER	II	**DATE OF EXAM**	29.05.2023
SUBJECT NAME	Quantum Mechanics for Engineers	**SUBJECT CODE**	PHH101B-T
BRANCH	AIML,CDF & CSTI	**SESSION**	II
TIME	3 hrs (01:00 – 04:00PM)	**MAX. MARKS**	100
PROGRAM	B.Tech	**CREDITS**	04
NAME OF FACULTY	Dr. Jaiparkash	**NAME OF COURSE COORDINATOR**	Dr. Jaiparkash

Note: All questions are compulsory.

SET -A

	Q.NO.	QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	What is photoelectric effect? How can you determine the Planck's constant and work function of a material using this phenomenon?	7	CO1	L2	2.1.1
	1(B)	A particle is described by the wave function $\Psi = Ae^{-\frac{\alpha x^2}{2}}$ in the region $0 < x < \infty$. Determine the value of **A** so that wave function is normalized.	3	CO1	L3	2.1.1
PART-B	Q.2	Find the Eigen value and Eigen function for a harmonic oscillator in ground state.	10	CO2	L2	2.1.1
PART-C	Q.3(a)	What do you mean by a rigid rotator? Determine its eigen values and eigen functions.	15	CO3	L2	2.1.1
	Q.3(b)	Calculate the energy difference between the first two rotational energy levels of the $^{12}C^{16}O$ molecule if the internuclear separation is 1.2 Å. Assume the molecule to be rigid rotator. (Given: $h = 6.63\times10^{-34}$ Js, $N_A = 6.02\times10^{23}$)	5	CO3	L2	2.1.1
	Q.4(a)	Write down the Schrodinger equation for the hydrogen atom and hence obtain the solution for θ and ϕ – dependent parts.	13	CO3	L2	2.1.1
	Q.4(b)	Show that $[L_z, L_x] = i\hbar L_y$.	7	CO3	L2	2.1.1
PART-D	Q5.	Realize the basic logic classical gates (AND, OR and NOT logic gates) along with truth table using diode and transistor logics	15	CO4	L2	2.1.1
	Q6.	Write the notes on the following: (i) Entropy (ii) Reversibility of gates (iii) Qubits (iv) Entanglement	10	CO4	L2	2.1.1
	Q7.	Discuss the following quantum logic gates: (i) Controlled NOT gate (ii) Not gate, (iii) Hadamard gate, (iv) Phase shift gate (v) Identity gate,	15	CO4	L2	2.1.1

********** END **********

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DEPARTMENT OF EDUCATION AND HUMANITIES

End Term -B. Tech Sem II
Set- B

SEMESTER	II	DATE OF EXAM	08.06.2023
SUBJECT NAME	Professional English	SUBJECT CODE	EDS 166
BRANCH	ME, ECE, CSE	SESSION	II
TIME	01:00PM – 03:00PM	MAX. MARKS	50
PROGRAM	B. Tech	CREDITS	02
NAME OF FACULTY	Dr. Chhavi Kulshrestha, Ms. Supriya Dang	NAME OF COURSE COORDINATOR	Dr. Akhilesh Dwivedi

Note: All questions are compulsory in sections A, B and C.
Part A: Each question will be 2 marks.
Part B: Each question will be 5 marks.
Part C: Attempt any 2 out of 3 each question will be 10 marks

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1	How can you make communication effective? Explain.	02	CO1	BT2	
	2	What do you understand by paralanguage? What are its components?	02	CO1	BT2	
	3	Paraphrasing makes writing more authentic and unique. How?	02	CO3	BT4	
	4	While writing it is important to make emphasis on its introduction as well as the conclusion part. Why?	02	CO1	BT5	
	5	Discuss two punctuation marks with their examples.	02	CO3	BT2	
PART- B	6	What are the most challenging aspects while preparing a Presentation according to you? Explain.	05	CO1	BT2	
	7	Formulate the difference between Phrases and Clauses by giving suitable examples.	05	CO1	BT4	
	8	What are consonant sounds in the English language? Explain nasal sounds in detail.	05	CO3	BT2	
	9	Why are telephone greetings important? What strategies will you use while handling customer calls?	05	CO3	BT2	
PART-C	10	Listening is one of the important components of effective communication. How would you handle a situation in the workplace where there would be a miscommunication? Justify.	10	CO1	BT6	
	11	Why do you think non-verbal communication is equally important while doing a conversation? What role do facial expressions, gestures, and pauses play in communication?	10	CO1	BT5	
	12	Write an essay in 500 words on "The Role of Journalism and Media in today's Time"	10	CO3	BT6	

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DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY

"End Term Examination, Jan-2023"

SEMESTER	**IV**	**DATE OF EXAM**	22.05.2023
SUBJECT NAME	**ARTIFICIAL INTELLIGENCE**	**SUBJECT CODE**	**CSH205B-T**
BRANCH	**CSE**	**SESSION**	I
TIME	09:00 –12:00PM	**MAX. MARKS**	**100**
PROGRAM	**B.TECH**	**CREDITS**	**4**
NAME OF FACULTY	**Dr. R. GIRIJA, Mr. Narender, Dr. Neelu Chaudary**	**NAME OF COURSE COORDINATOR**	**Dr. R. GIRIJA**

Note: Part A : All questions are compulsory.
Part B: All questions are compulsory

Manbrat Kaur

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	What is "Thinking Humanly" and "Thinking Rationally"	2	CO1	BT2	1.1.1
	1(B)	What are the sensors and effectors of Human agent and Robotic Agent.	2	CO2	BT1	1.1.2
	1(C)	Difference between Heuristic search and Non-Heuristic Search	2	CO2	BT2	2.1.1
	1(D)	Write few benefits of Expert systems.	2	CO3	BT1	1.1.2
	1(E)	Define Neural network.	2	CO4	BT1	1.4.1
PART-B	Q2(A)	Describe water-jug problem.	5	CO2	BT2	2.2.1
	Q2(B)	Write the algorithm for A*. Carry out the dry run of the algorithm on a given tree.	7	CO3	BT3	2.2.1

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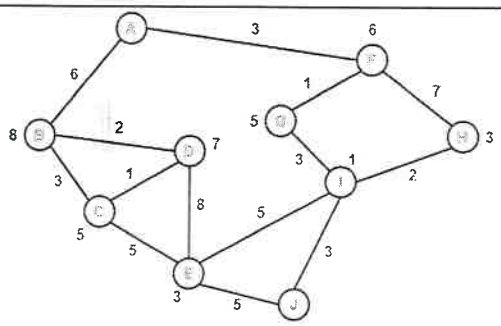

Q2(C)	Consider the following English language statements: a. John likes all kind of food. b. Apple and vegetable are food c. Anything anyone eats and not killed is food. d. Anil eats peanuts and still alive e. Harry eats everything that Anil eats. **Prove by resolution that:** **John likes peanuts.** a. ∀x: food(x) → likes(John, x) b. food(Apple) ∧ food(vegetables) c. ∀x ∀y: eats(x, y) ∧ ¬ killed(x) → food(y) d. eats (Anil, Peanuts) ∧ alive(Anil). e. ∀x : eats(Anil, x) → eats(Harry, x) f. ∀x: ¬ killed(x) → alive(x) } added predicates. g. ∀x: alive(x) →¬ killed(x) } h. likes(John, Peanuts) Carry out resolution of the above clause form statements for the given query.	15	CO3	BT3	1.2.1
Q2 (D)	Perform the alpha-beta pruning for the given figure. Terminal Nodes are 0,5, -3, 3, 3, -3, 0, 2, -2, 3,5,-5, 0, 1, 5,1,-3,0,-5,5,-3, 3, 2	15	CO3	BT3	

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		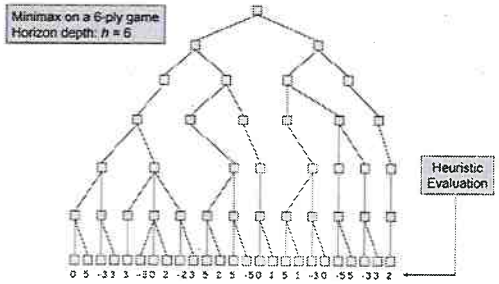				
	Q3(A)	What are Markov models? What are Hidden Markov Model (HMM) and Markov chain? What are real world example where the HMM used?	10	CO4	BT2	1.4.1
	3(B)	Explain machine learning and its types with examples.	10	CO4	BT2	2.2.1
PART-C	Q4(A)	Write short notes on a) Mycin b) Dendral	8	CO3	BT2	1.1.1
	4(B)	Explain the architecture of an expert system with a diagram.	10	CO4	BT2	1.4.1
	4(C)	Write short notes on: a. Neural Networks b. Genetic Algorithm c. Speech Processing	10	CO4	BT2	4.1.1
		********** END **********				

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DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

"End Term Examination, Jan.-June 2023"

SEMESTER	**IV**	**DATE OF EXAM**	30.05.2023
SUBJECT NAME	**Software Craftsmanship**	**SUBJECT CODE**	**CSH210B-T**
BRANCH	**CSE**	**SESSION**	I
DURATION	**2.5 hours (9.00–11.30AM)**	**MAX. MARKS**	**75**
PROGRAM	**B.Tech. CSE (CDA)**	**CREDITS**	**3**
NAME OF FACULTY	**CSE4CDA Mr. Ram Chatterjee**	**NAME OF COURSE COORDINATOR**	**Mr. Ram Chatterjee**
		AUTHORIZED SIGNATORY	

Note: Part A, B : All questions are compulsory. Questions are of short answer type.
Part C, D: All questions are compulsory. Questions are of descriptive type.

	Q.NO.	QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Which SDLC model places the most emphasis on testing and quality assurance?	1	CO1	BT1	1.4.1
	1(B)	What is the other term for static binding?	1	CO1	BT1	1.4.1
	1(C)	What is the other term for optimized code?	1	CO1	BT1	1.4.1
	1(D)	How do you prevent a class from being inherited in java?	1	CO1	BT1	1.4.1
	1(E)	For better modularity which type of cohesion is preferred?	1	CO1	BT1	1.4.1
	1(F)	Which design pattern provides ways to create objects in a manner suitable to the situation?	1	CO1	BT1	1.4.1
	1(G)	How does java group similar classes?	1	CO1	BT1	1.4.1
	1(H)	Binding the data and the methods that operate on that data into a single unit or object, and restricting access to the data to ensure data integrity is known as _____	1	CO1	BT1	1.4.1
	1(I)	Can abstract class have constructors?	1	CO1	BT1	1.4.1
	1(J)	What is Principle of Least Knowledge also known as?	1	CO1	BT1	1.4.1
PART-B	Q2.	You are tasked with designing a class that will be responsible for processing and storing customer data in a CRM system. How	5	CO2	BT3	3.2.2

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		would you apply the SOLID design principle to ensure that the class is flexible and maintainable?				

	Q3.	Discuss the naming best practices with examples. In context of the following use case justify if the naming practice followed is acceptable or not:
		`// Function in Class A`
		`function add(x, y) {`
		`  return x + y;`
		`}// Function in Class B`
		`function add(x) {`
		`  this.items.add(x);}`
			10	CO3	BT3	2.2.4

	Q4.	You are developing a new feature for an e-commerce website that allows customers to view their purchase history. How would you use Test Driven Development (TDD) to ensure that the feature is robust and error-free?	10	CO3	BT3	2.2.3
	Q5.	Mention the phases of code inspection.	10	CO2	BT2	1.4.1
PART-D	Q6.	Differentiate between Git and SVN.	10	CO3	BT2	1.4.1
	Q7.	In context of Ms-Excel exemplify the different Software Requirement Types in the following context. Business Requirements Functional Requirements Non-Functional Requirements Constraints	10	CO2	BT3	2.1.1
	Q8.	In context of programming process brief when would you use bottom up design.	10	CO3	BT3	2.2.2

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DEPARTMENT OF Computer Science & Technology

"End Term Examination, June-2023"

SEMESTER	**IV**	**DATE OF EXAM**	01.06.2023
SUBJECT NAME	**Object Oriented Programming using Java**	**SUBJECT CODE**	**CSH201 B-T**
BRANCH	CSE [AIML/CDA/CSTI]	**SESSION**	I
Duration	180 Minutes (9:00-12:00PM)	**MAX. MARKS**	**100**
PROGRAM	**B.Tech**	**CREDITS**	**5**
NAME OF FACULTY	**Dr. Meena Chaudhary/ Dr. Mamta Arora /Ms. Rashmeet**	**NAME OF COURSE COORDINATOR**	**Dr. Meena Chaudhary**

Note: Part A : All questions are compulsory.
Part B: Questions will be of descriptive type or numerical.

Mamta Kaur

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	What is default library of java? List any five features of java.	2	CO1	BT1	1.2.1
	1(B)	What you mean by shadow variable? Explain with example.	2	CO2	BT1	1.2.1
	1(C)	What do you mean by method overloading? Does Java support method over loading? Justify with example.	2	CO1	BT2	1.2.2
	1(D)	What is Exception hierarchy? What is the base class for Error and Exception?	2	CO3	BT1	1.2.1
	1(E)	What do you mean by thread synchronization? How thread can be synchronized?	2	CO3	BT2	1.2.2
	1(F)	Distinguish between interfaces and classes.	2	CO2	BT2	1.2.3
	1(G)	What is the purpose of File class? List any five methods of File class.	2	CO4	BT2	1.1.2
	1(H)	What is the syntax of run method? How can we invoke the run() to start a thread?	2	CO3	BT1	1.2.1
	1(I)	What is package? In which package Scanner class is defined?	2	CO3	BT1	1.2.1

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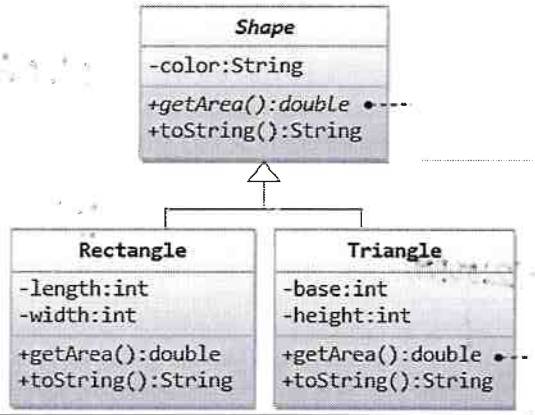
	1(j)	List any two usage of Final keyword with example.	2	CO2	BT2	1.2.2
PART-B	Q2	Write a java program to implement following diagram, where *Shape* Class is a abstract class and *getArea()*in shape class is abstract method. Print the area of Rectangle Class and Triangle Class. 	10	CO2	BT3	1.4.1
	Q3	Write a java program that creates two classes "Room" and "RoomArea". The first class does the initialization part for length &breadth and the second class calculates & print the area of the Room.	10	CO1	BT2, BT3	1.3.1
PART-C	Q4	What is interface. Create an interface for moving objects called Moveable that has a constant field called averageSpeed and an abstract method move().Create a class called Vehicle that implements the interface Moveable and print speed in move() .	2+8	CO2	BT3	1.4.1
	Q5	Define the properties of Interface. List out the differences between interface and abstract class in Java.	4+6	CO2	BT2	1.4.1
	Q6	Explain exception handling mechanism in Java with diagram. Create a class Employee with attributes empid, age and address. Initialize value through parameterized constructor. If empid of employee is not between 1 to 30 then generate user defined exception "EmpidNotWithinRangeException" .	5+5	CO3	BT3	1.3.1
PART-D	Q7	Explain all the four process of Relinquishing Control of thread in java with suitable example.	10	CO3	BT2	1.4.1
	Q8	Using the classes FileInputStream and FileOutputStream write a java program to copy an input file into an output file.	10	CO4	BT3	2.2.4
	Q9	Differentiate between the following • InputStream and OutputStream • Byte stream and character stream	5+5	CO4	BT2	2.2.4

********** END **********

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DEPARTMENT OF Computer Science & Technology

"PSC Examination, June-2023"

SEMESTER	**IV**	**DATE OF EXAM**	1.06.2023
SUBJECT NAME	**Object Oriented Programming using Java**	**SUBJECT CODE**	**CSH201 B-T**
BRANCH	**AIML/CDA/CSTI**	**SESSION**	II
Duration	**180 Minutes**	**MAX. MARKS**	**100**
PROGRAM	**B.Tech**	**CREDITS**	**5**
NAME OF FACULTY	**Dr. Meena Chaudhary/ Dr. Mamta Arora /Ms. Rashmeet**	**NAME OF COURSE COORDINATOR**	**Dr. Meena Chaudhary**

Note: Part A : All questions are compulsory.
Part B: Questions will be of descriptive type or numerical.

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Why multiple Inheritance is not possible in java?	2	CO2	BT2	1.2.1
	1(B)	Can we have multiple catch blocks? Justify your answer with syntax.	2	CO3	BT1	1.2.1
	1(C)	When does ArrayIndexOutOfBoundException occurr? Justify using suitable example.	2	CO3	BT2	1.2.2
	1(D)	Differentiate between instance variables and static variables?	2	CO2	BT2	1.2.1
	1(E)	List any five class of java.io package.	2	CO4	BT1	1.2.2
	1(F)	In Which package Thread class is defined? List any two methods of Thread class.	2	CO3	BT1, BT1	1.2.3
	1(G)	Give significance of finalize() in java.	2	CO3	BT2	1.1.2
	1(H)	What do you mean by method overloading? Does Java support method overloading? Justify with example.	2	CO1	BT2, BT2	1.2.1
	1(I)	Define Java Token. Differentiate between Identifier and Literal in java.	2	CO1	BT1, BT2	1.2.1
	1(J)	List any two usage of super keyword with example.	2	CO2	BT2	1.2.2

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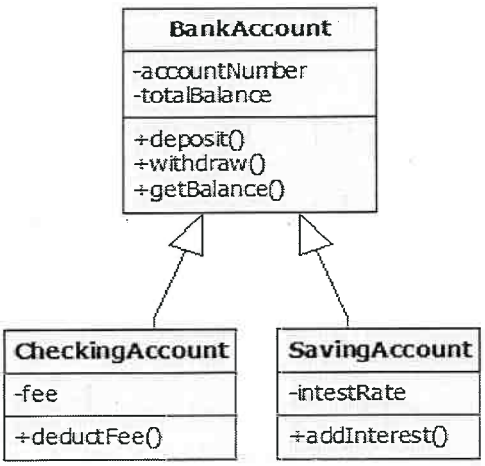
PART-B	Q2	Write a program in Java to implement the following relationship  	10	CO2	BT3	1.4.1
	Q3	What do you understand by Polymorphism? Explain with a program code for method overloading.	2+8	CO1	BT2, BT3	1.3.1
PART-C	Q4	Explain diamond problem in java using diagram. How we can overcome such kind of situations?	5+5	CO2	BT2, BT2	1.4.1
	Q5	What is abstract class in java? Can we instantiate an abstract class? Write the syntax for creating an abstract class and differentiate between interface and abstract class in Java with suitable example.	2+2+2+4	CO2	BT2, BT2, BT2	1.4.1
	Q6	Explain exception handling mechanism in Java with diagram. Write a program code for handling 1/0 (one divided by zero) exception handling.	5+5	CO3	BT3, BT3	1.3.1
PART-D	Q7	Write a program in Java that will create three threads namely threadP, thread and threadR using Thread Class that will print the alphabets from 'A' to 'E' Set the priority of threadR so that it will print its alphabets first, then threadQ and threadP will print its alphabets in last.	10	CO3	BT3	1.4.1
	Q8	Write a program in Java that will read the following content from the file "f1.txt" and write the same content in another file named "f2.txt". "Java is a general-purpose computer programming language that is concurrent, class-based, object-oriented, and specifically designed to have as few implementation dependencies as possible\n. "	10	CO4	BT3	2.2.4
	Q9	Differentiate between the following • BufferedReaderClass and BufferedWriter Class • ByteStream Class and CharacterStream Class	5+5	CO4	BT2	2.2.4

********** END **********

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DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY

"End Term Examination, May-2023"

SEMESTER	**IV**	**DATE OF EXAM**	30.05.2023
SUBJECT NAME	**OPERATING SYSTEM**	**SUBJECT CODE**	**CSH206B-T**
BRANCH	**CSE**	**SESSION**	I
TIME	**3 Hrs (9:00 -12:00PM)**	**MAX. MARKS**	**100**
PROGRAM	**B.TECH**	**CREDITS**	**4**
NAME OF FACULTY	**Dr. Deepti Thakral Dr. Jyoti Pruthi Mr. Anup Kumar**	**NAME OF COURSE COORDINATOR**	**Dr. Deepti Thakral**

Manpreet Kaur

Note: *Part A : All questions are compulsory. Questions will be of short answer type (10*2=20 marks).*
*Part B: All questions are compulsory. Questions will be of descriptive type or numerical. (4*5=20 marks).*
*Part C: All questions are compulsory. Questions will be of descriptive type or numerical. (6*10=60 marks).*

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	What are the functions of an operating system from user's and system's viewpoint?	2	CO1	L2	1.3.1
	1(B)	With a neat diagram, explain various states of a process.	2	CO1	L2	1.3.1
	1(C)	What is the convoy effect? Explain with an example.	2	CO1	L2	1.3.1
	1(D)	Illustrate the use of fork and exec system calls.	2	CO1	L2	1.3.1
	1(E)	What are interrupts? How does the Operating System handle interrupts?	2	CO1	L2	1.3.1
	1(F)	Describe bootstrap program.	2	CO1	L2	1.3.1
	1(G)	Define: a) Race Condition b) Mutual Exclusion	2	CO1	L1	1.3.1
	1(H)	What do you mean by Compaction? In what situation is it applied?	2	CO2	L2	1.3.1
	1(I)	Is the Context Switching an overhead? Justify your answer.	2	CO3	L4	1.3.1

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	1(J)	In a system, the following state of processes and resources are given: R1->P1, P1->R2, P2->R3, R2->P2, R3-> P3, P3->R4, P4->R3, R4->P4, P4->R1, R1->P5 Draw the RAG for the system and check for deadlock conditions.	2	CO3	L3	
PART-B	Q2(A)	Consider the following scenario of processes in a system: Process / Arrival Time / Execution Time P1 / 0 / 7 P2 / 2 / 4 P3 / 4 / 1 P4 / 5 / 4 P5 / 3 / 4 Draw the Gantt chart for the execution of the processes, showing their start time and end time, using non-preemptive SJF algorithm. Calculate Turnaround time, Average Turnaround Time, Waiting Time, and Average Waiting Time.	5	CO2	L3	1.3.1
	2(B)	There is a shared resource which should be accessed by multiple processes. There are two types of processes in this context. They are 'Reader' and 'Writer'. Any number of readers can read from the shared resource simultaneously, but only one writer can write to the shared resource. When a writer is writing data to the resource, no other process can access the resource. A writer cannot write to the resource if there are non zero number of readers accessing the resource at that time. Write an algorithm to coordinate the reader and the writer.	5	CO4	L5	2.1.3
	Q3(A)	Differentiate between a) Paging and Segmentation b) Virtual (logical) address and a physical address	5	CO1	L2	1.3.1
	3(B)	If the hit ratio to a TLB is 80% and it takes 15 nanoseconds to search the TLB, and 150 nanoseconds to access the main memory, then What must be the effective memory access	5	CO4	L5	2.1.3

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		time in nanoseconds?				
PART-C	Q4(A)	Given free memory partitions of 100 K, 500 K, 200 K, 300 K, and 600 K (in order), how would each of the First-fit, Best-fit, and Worst-fit algorithms place processes of 212 K, 417 K, 112 K, and 426 K (in order)?	10	CO4	L3	2.1.3
	4(B)	What do you mean by Page replacement? Why is there a need for it and how is it done? Explain with the help of a neat diagram.	10	CO3	L3	1.3.1
	Q5(A)	A disk drive has 200 cylinders, numbered 0 to 199. The drive is currently serving a request at cylinder 53. The queue of pending requests, in FIFO order, is 98, 183, 37, 122, 14, 124, 65, 67. Starting from the current head position, what is the total distance (in cylinders) that the disk arm moves to satisfy all the pending requests for each of the following disk-scheduling algorithms? i) FCFS ii) SSTF iii) C-SCAN iv) C-LOOK	10	CO2	L4	2.1.3
	5(B)	What do you mean by a Deadlock? What are the necessary conditions for a deadlock? Explain deadlock detection with suitable example.	10	CO2	L2	1.3.1
	Q6(A)	What is a file system? Explain the different types of file systems used in an operating system. List out the major attributes and operations of File System.	10	CO1	L2	1.3.1
	6(B)	Discuss how the following pairs of scheduling criteria conflict in certain settings. a) CPU utilization and response time b) Average turnaround time and maximum waiting time c) I/O device utilization and CPU utilization	10	CO4	L4	1.3.1

********** END **********

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DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

"End Term Examination, May-2023"

SEMESTER	**4th**	**DATE OF EXAM**	30.05.2023
SUBJECT NAME	**Digital Forensics**	**SUBJECT CODE**	**CSH214B-T**
BRANCH	**CSTI**	**SESSION**	I
DURATION	**120 MIN** (9:00–11:00AM)	**MAX. MARKS**	**60**
PROGRAM	**B.Tech**	**CREDITS**	**4**
NAME OF FACULTY	**Ms. Gunjan**	**NAME OF COURSE COORDINATOR**	**Ms. Gunjan**

Manpreet Kaur

	Q.NO.	QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	What do you understand by the term Order of Volatility in Digital Forensics? Give a suitable real-life scenario to support your answer.	3	CO1	BT1	1.1.2
	1(B)	When a Digital forensics expert visits a crime scene,What can be the possible evidence might that may be found on the crime scene ?	3	CO1	BT2	1.1.1
	1(C)	In Digital forensics, what are the characteristics of a Forensic Expert? Which characteristic is most important according to your opinion?	3	CO1	BT1	1.3.1
	1(D)	What is the importance of Image Write Blocker in evidence acquisition? What will happen if an image is captured without a write blocker?	3	CO1	BT1	1.4.1
	1(E)	What do you understand by the Slack Space and how is it useful in Digital forensics?	3	CO1	BT2	1.1.2
	1(F)	When a digital evidence is acquired from a crime like pen-drive. What will be the task to be performed?	3	CO4	BT1	1.1.1
	1(G)	What is the difference between an allocated space and an unallocated space?	3	CO3	BT1	1.3.1
	1(H)	Why is hashing used in Digital Forensics and what are different types of hashes available in real life scenarios?	3	CO1	BT2	1.4.1
	1(I)	Write short notes on the following tools: • FTK Imager • ProDiscover	3	CO1	BT2	1.1.2

		• Autopsy • Volatility.				
	1(J)	What are the different types of OS available in the market for Digital Forensics Analysis?	3	CO1	BT2	1.1.1
PART-B	Q2(A)	Explain different types of evidence acquisition and give a suitable real-life scenario to support your answer	5	CO2	BT2	1.3.1
PART-C	Q3(A)	Briefly explain the term Registry Structures and issues in registry analysis with suitable examples.	5	CO3	BT3	1.4.1
PART-D	Q4(A)	What do you understand by the term User Hive in Registry analysis? Briefly explain the relative terms of the User hive. Give a suitable example to support your answer.	10	CO4	BT3	1.3.1
	4(B)	How does a flash drive store data.?Explain it with the help of neat label diagram.	10	CO4	BT3	1.4.1

********** **END** **********

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DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

EVEN SEMESTER (JAN-2023)

END TERM EXAMINATION

COURSE NAME: DATABASE MANAGEMENT SYSTEM	COURSE CODE: CSH202B-T	CREDIT: 4	MAX. MARKS: 100	9:00 – 12:00 PM TIME DURATION: 3hr	DATE OF EXAM: 26.5.2023
PROGRAM: B.TECH CSE AIML-A/B, CSTI, CDA		SEMESTER: 4th			
FACULTY NAME: Ms. Rashmeet Toor, Ms. Jyoti Nanwal			NAME OF COURSE COORDINATOR : Ms. Jyoti Nanwal		

Note: All questions are compulsory.

	Q.NO.	QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	What is Data Abstraction?	2	CO1	BT2	1.3.1
	1(B)	What are the Disadvantages of DBMS?	2	CO1	BT2	1.3.1
	1(C)	Explain Secondary Indexing with the help of example.	2	CO1	BT2	2.2.4
	1(D)	What is Generalization ?	2	CO3	BT1	1.3.1
	1(E)	Explain the difference between the DELETE,TRUNCATEand DROP command.	2	CO2	BT2	5.2.2
	1(F)	What is the difference between Foreign Key and Primary key?	2	CO2	BT2	2.2.4
	1(G)	What are Multi valued and Derived Attributes?	2	CO3	BT1	1.3.1
	1(H)	what is Non Repeatable Read problem in Concurrency Control?	2	CO5	BT2	1.3.1
	1(I)	What is a Functional Dependency? Explain with Example.	2	CO5	BT1	1.3.1
	1(J)	What is Lossless Join?	2	CO4	BT2	2.2.4
PART-B	Q2(A)	Mention the issues with Traditional File-based systems that make DBMS a better choice?	5	CO1	BT3	1.4.1
	Q2(B)	Search Keys- 42,16,91,33,18,27,36,62 (i)h(k)=k mod 10 (ii)when collision occur h(k,i)=(h(k)+i) mod10 Where i= collision no./prob number(1,2,3……) Draw hash table for above search keys by using hash function.	5	CO1	BT2	1.3.1
	Q3(A)	What are DDL Commands? Explain all DDL commands with syntax.	5	CO2	BT3	2.2.4
	3(B)	Consider the following schema for a library database Author (authorid, authorname, citizenship, birthyear) Book(isbn, title, authorid, qty) Topic(isbn, subject) Branch(libname, city) Write relational algebra expressions for the following: I. Display book title and authorname for books on Computer subject. II. Display books whose quantity is less than 5.	5	CO2	BT4	1.4.1
P	Q4(A)	What is an Entity set? List and explain the symbols used to draw an ER Diagram. Draw an ER diagram for the Library Management System.	10	CO3	BT3	1.4.1

PART-C	Q5	What is a Candidate key. Let R be a Relation having schema R(A B C) with the set of F.D's F={A ->B , B -> C, C->A}. Find the possible candidates keys for Relation R.	10	CO4	BT3	1.4.1
	Q6	With suitable examples define the terms Candidate key, Primary Key, Alternate Key, Secondary Key and Foreign Key.	10	CO4	BT3	1.4.1
PART-D	Q7	Consider two Transactions for the Given two schedules S1: r1(x),r2(X),r2(y),w1(x),w1(y),w2(y) S2:r1(x),r2(x),r2(y),w1(x),w2(y),w1(y). Check the above schedules are Conflict Serializable or not ?	10	CO5	BT3	1.3.1
	Q8	What is Recovery Management. How does it work? And Explain Immediate Database Mofification Recovery Algorithms.	10	CO5	BT2	1.4.1
	Q9	Define a Transaction. Discuss Transaction States along with the help of a diagram.	10	CO5	BT2	1.3.1

********** END **********

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DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY

"End Term Examination, May -2023"

SEMESTER	4th Sem	**DATE OF EXAM**	22.05.2023
SUBJECT NAME	Computer Architecture & Organization	**SUBJECT CODE**	CSH209B-T
BRANCH	CSE- AIML	**SESSION**	I
TIME	3 Hour (9:00-12:00PM)	**MAX. MARKS**	100
PROGRAM	B.Tech	**CREDITS**	05
NAME OF FACULTY	Dr Prinima	**NAME OF COURSE COORDINATOR**	Dr Prinima

Note: All the questions are compulsory.

Q.NO.		QUESTIONS	MARKS	CO ADD	BLOOM'S LEVEL	PI
PART-A	1a	What is the requirement of Hexadecimal and Octal number systems, when we have the Binary number system? Convert the Octal number 256 into hexadecimal and Decimal numbers.	5	CO1	BT3	1.4.1
	1b	What is the difference between High Level, Intermediate Level & Assembly Level Programming?	5	CO1	BT2	1.4.1
PART-B	2a	Differentiate between RISC and CISC computers.	5	CO2	BT2	1.4.1
	2b	An instruction is stored at location 700 with its address field at location 701.The address field has the value 450. A processor register R1 contains the number 300. Evaluate the effective address if the addressing mode of the instruction is: i. Direct; ii. Immediate; iii. Relative; iv. Register indirect; v. Index with R1 as the index register;	5	CO2	BT3	1.4.1
PART-C	3a	How many RAM chips of size (128K x 1 bit) are required to build 1M Byte memory?	5	CO1, CO3	BT3	1.4.1
	3b	Why is Cache mapping required and also state all types of mapping.	10	CO3	BT2	1.4.1
	4a	State different Modes of transfer. Explain the working of a DMA controller with the help of a block diagram.	10	CO1, CO3	BT2	1.4.1
	4b	Explain how an I/O interrupt can be handled with the help of interrupt cycle.	5	CO1, CO3	BT2	1.4.1

	5a	The memory access time is 1 nanosecond for a read operation with a hit in cache, 5 nanoseconds for a read operation with a miss in cache, 2 nanoseconds for a write operation with a hit in cache and 10 nanoseconds for a write operation with a miss in cache. Execution of a sequence of instructions involves 100 instruction fetch operations, 60 memory operand read operations and 40 memory operand write operations. The cache hit-ratio is 0.9. Calculate average memory access time (in nanoseconds) in executing the sequence of instructions.	10	CO1, CO3	BT3	1.4.1
PART-D	6a	Differentiate between an instruction format and a microinstruction format.	5	CO2, CO4	BT2	1.4.1
	6b	Explain the working of microprgram sequencer in the execution of microinstructions stored in control memory with the help of a block diagram.	10	CO2, CO4	BT1	1.4.1
	7a	Assume that the time required for the five functional units, which operate in each of the five cycles are: 10 ns, 8 ns, 10 ns, 5 ns and 7 ns. Assume that pipelining adds 1 ns of overhead. Find the speed up versus single cycle data path.	5	CO4	BT3	1.4.1
	7b	Differentiate between Synchronous and Asynchronous Pipeline. Design a 4-segment instruction pipeline.	10	CO4	BT3	1.4.1
	8a	Instructions are executed in a 3-stage pipelining. Assume that each instruction required different stage delay (in terms of number of clock cycle) as mentioned in the table below. Find the speedup factor?	10	CO4	BT3	1.4.1

	IF	ID	EX
I1	1	1	1
I2	2	2	3
I3	2	1	3
I4	1	4	2
I5	3	2	4

********** END **********

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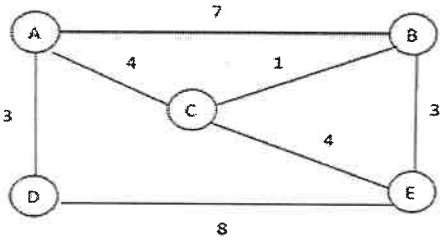
DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY.

"End Term Examination, Jun-2023"

SEMESTER	**4th CDA CSTI 6th AIML**	**DATE OF EXAM**	22.05.2023
SUBJECT NAME	**COMPUTER NETWORK**	**SUBJECT CODE**	**CSH301B-T**
BRANCH	**CDA CSTI AIML**	**SESSION**	I
Duration	**150min (9:00 – 11.30AM)**	**MAX. MARKS**	**75**
PROGRAM	**B.TECH [CDA CSTI AIML] CSE**	**CREDITS**	**4CDA :4 4CSTI:5 6AIML:4**
NAME OF FACULTY	**Ms. Gunjan,Dr. Manoj,Mr. Narender**	**NAME OF COURSE COORDINATOR**	**Ms. Gunjan**

Note:All Questions are compulsory in each part

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Show the generation of codeword at the sender site and check the same at the receiver site using CRC where data word is 1010011010 and the deviser is 10111.	2	CO2	BT2	2.1.1
	1(B)	Explain IEEE 802.3 data frame format.	2	CO2	BT2	2.1.1
	1(C)	Given 1101011011 data frame and generator polynomial G(x) = x4 + x + 1. Derive the transmitted frame.	2	CO1	BT1	1.3.1
	1(D)	For 7 devices in a network, what is the number of cable links required for a mesh, ring, bus, and star topology?	2	CO2	BT1	1.1.3
	1(E)	Explain character stuffing and bit stuffing for framing.	2	CO1	BT1	1.1.2

PART-B	Q2(A)	Discuss the IPv4 packet header format with diagram. Consider an IPv4 datagram has arrived with the following information in the header (in hexadecimal): Ox 46 00 00 54 00 03 58 50 20 06 00 00 7C 4E 03 02 B4 OE OF 02. Calculate the following parameters: 1. What is the size of the option field? 2. Is the packet fragmented? 3. What is the size of the actual data? 4. How many more routers can the packet travel to? 5. What is the Source address?	10	CO3	BT3	1.3.1
PART-C	Q3(A)	An organization is granted an address with beginning address 172.16.26.0/24. The organization need to have 12 subnets as shown below:Three subnets, each with 4 addresses. • Two subnets, each with 16 addresses. • Six subnets, each with 32 addresses. • One subnet, each with 64 addresses. Design the appropriate diagram for subnets.	10	CO2	BT2, BT3	1.2.2
	3(B)	Discuss the steps for Link state Routing. Consider the image given below and show the Routing table for node D, and E using Link State Routing Protocol. 	10	CO2, CO5	BT2,BT3	2.1.2
	Q4(A)	Discuss the frame format for UDP. Differentiate between TCP and UDP.	10	CO2, CO3	BT2	1.2.1
PART-D	Q5(A)	Explain internetworks switching. Differentiate the Circuit switching and Packet switching.	10	CO4	BT2	2.1.2
	5(B)	Explain VLAN in detail along with its advantages and disadvantages.	10	CO4	BT2	2.1.2
	6(A)	Write short notes on : 1. DNS 2. HTTP	5	CO5	BT1	2.3.1

********** END **********

MANAV RACHNA UNIVERSITY

DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY

PSC" *Examination, May -2023"*

SEMESTER	4th Sem	**DATE OF EXAM**	3.6.2023
SUBJECT NAME	Computer Architecture & Organization	**SUBJECT CODE**	CSH209B-T
BRANCH	CSE- AIML	**SESSION**	I
TIME	3 Hour	**MAX. MARKS**	100
PROGRAM	B.Tech	**CREDITS**	05
NAME OF FACULTY	Dr Prinima	**NAME OF COURSE COORDINATOR**	Dr Prinima

***Note**: All the questions are compulsory.*

Q.NO.		QUESTIONS	MARKS	CO ADD	BLOOM'S LEVEL	PI
PART-A	1a	Perform the operation and find out the result: (a) $(77.012)_{10}$ = (_____)$_2$ = (_____)$_{16}$ (b) $(10001.1101)_2$ = (_____)$_{10}$ = (_____)$_8$ (c) $(456)_8$ = (_____)$_2$	5	CO1	BT3	1.4.1
	1b	Write a note on Store Program Concept?	5	CO1	BT1	1.4.1
PART-B	2a	Differentiate between Register stack & Memory stack organization.	5	CO2	BT2	1.4.1
	2b	An instruction is stored at location 600 with its address field at location 601.The address field has the value 350. A processor register R1 contains the number 100. Evaluate the effective address if the addressing mode of the instruction is: i. Direct; ii. Immediate; iii. Relative; iv. Register indirect; v. Index with R1 as the index register;	5	CO2	BT3	1.4.1
PART-C	3a	Design and explain the concept of expanded memory with the help of four RAMs (128 * 8 words) and a ROM (512 * 8 words).	5	CO1, CO3	BT3	1.4.1
	3b	Name and explain any two different type of mapping procedures of cache memory with the help of diagram.	10	CO3	BT2	1.4.1
	4a	State different Modes of transfer. Explain working of DMA controller with the help of block diagram.	10	CO1, CO3	BT2	1.4.1
	4b	How an I/O interrupt can be handled with the help of interrupt cycle? Explain.	5	CO1, CO3	BT3	1.4.1

	5a	The memory access time is 1 nanosecond for a read operation with a hit in cache, 5 nanoseconds for a read operation with a miss in cache, 2 nanoseconds for a write operation with a hit in cache and 10 nanoseconds for a write operation with a miss in cache. Execution of a sequence of instructions involves 100 instruction fetch operations, 60 memory operand read operations and 40 memory operand write operations. The cache hit-ratio is 0.9. Calculate average memory access time (in nanoseconds) in executing the sequence of instructions.	10	CO1, CO3	BT3	1.4.1
PART-D	6a	Differentiate between instruction format and microinstruction format.	5	CO2, CO4	BT2	1.4.1
	6b	Explain the working of microprogram sequencer in the execution of microinstructions stored in control memory with the help of block diagram.	10	CO2, CO4	BT2	1.4.1
	7a	Assume that the time required for the five functional units, which operate in each of the five cycles are: 10 ns, 8 ns, 10 ns, 5 ns and 7 ns. Assume that pipelining adds 1 ns of overhead. Find the speed up versus single cycle data path.	5	CO4	BT3	1.4.1
	7b	What are the drawbacks in pipelining? Explain various dependency problems in pipelining.	10	CO4	BT2	1.4.1
	8a	In certain scientific computations it is necessary to perform the arithmetic operation (Ai+Bi)(Ci+Di) with a stream of numbers. Specify a pipeline configuration to carry out this task. List the contents of all registers in the pipeline for i=1 through 6.	10	CO4	BT3	1.4.1
		********** END **********				

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DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

"End Term Examination, May-2023"

SEMESTER	**VIth**	**DATE OF EXAM**	19.05.2023
SUBJECT NAME	**COMPUTER GRAPHICS & MULTIMEDIA**	**SUBJECT CODE**	**CSH310B-T**
BRANCH	**CSE**	**SESSION**	II
DURATION	**150 MINUTES(01:00-3.30)**	**MAX. MARKS**	**75**
PROGRAM	**B.TECH.**	**CREDITS**	**3**
NAME OF FACULTY	**Mr. Manoj Kumar, Dr. Urmila Pilania**	**NAME OF COURSE COORDINATOR**	**Mr. Manoj Kumar**

Note: Part A : All questions are compulsory. Questions will be of short answer type (15Marks).
Part B,C: Questions will be of descriptive type or numerical. Each question will be of 15

Manpreet Ka

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Explain the working of Direct view storage tube.	3	CO2	L1	1.1.2
	1(B)	The reflection along the line y=x is equivalent to the reflection along the x axis followed by counter clockwise rotation by θ degrees. Find the value of θ.	3	CO4	L3	2.1.2
	1(C)	Differentiate between parallel projection and Perspective projection.	3	CO2	L1	1.1.2
	1(D)	Explain about the Hypermedia message components.	3	CO4	L3	2.1.2
	1(E)	Develop a general form of Bezier blending function of degree 3.	3	CO5	L3	2.1.2
PART-B	Q2(A)	Write Bresenham Algorithm and show how it draws a line whose end point is (4,4) and (-3,0).	7	CO5	L2	1.1.2
	2(B)	How does DDA differs from Bresenham Line drawing algorithm?	3	CO2	L2	1.1.3

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	Q3(A)	Discuss window to viewport mapping. Find normalization transformation window to viewport with window lower left corner at (1,1) and upper right corner at (3,5) onto a viewport with lower left corner at (0,0) and upper right corner at (1/2,1/2).	7	CO4	L3	2.2.1
	3(B)	A rectangular parallelopiped is given having length on x-axis, y-axis, z-axis as 3,2,1 respectively. Perform a rotation by an angle -90 degree about x-axis and an angle 90 degree about y-axis.	3	CO5	L4	2.2.2
PART-C	Q4(A)	What do you understand by Bezier Curve? Explain the properties of Bezier Curve. Find the equation of a Bezier Curve which passes through the points (0,0) and (-2,1) and is controlled through points (7,5) and (2,0).	2,2,6	CO1,CO5	L3	2.2.2
	4(B)	Explain Back Face Detection Method. Give the advantages and disadvantages of the Back Face Detection Method.	5	CO2,CO3	L2	1.2.1
	Q4(C)	What do you mean by illumination? Explain Gouraud Shading algorithm with example. . Explain its advantages and disadvantages.	5	CO2	L2	1.1.2
	Q5(A)	Explain about Multimedia databases. Explain about various animation and special effects in 3D.	8	CO2	L2	1.1.2
	5(B)	Explain the JPEG compression technique in detail.	6	CO3	L2	1.1.2
	5(C)	Describe the design approaches, issues and types of authoring tools with required diagrams.	6	CO2, CO3	L2	1.1.3

********** END **********

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DEPARTMENT OF CST

"End Term Examination, May-June-2023"

SEMESTER	**CSE4, AIML6, CDA6, CSTI6**	**DATE OF EXAM**	20.05.2023
SUBJECT NAME	**SOFTWARE ENGINEERING**	**SUBJECT CODE**	**CSH207B-T**
BRANCH	**CSE4, AIML6, CDA6, CSTI6**	**SESSION**	I
TIME	**180 MINUTES**	**MAX. MARKS**	**100**
PROGRAM	**B Tech CSE/AIML/ CDA/CSTI**	**CREDITS**	**CSE4/CSTI6:4 AIML6/CDA6:3**
NAME OF FACULTY	**Dr. Sachin Lakra Dr. Charu Jain Dr. Yojna Arora Mr. Agha Imran Husain**	**NAME OF COURSE COORDINATOR**	**Dr. Sachin Lakra**

Note: Part A: All questions are compulsory.
Part B: All questions are compulsory.

Manpreet Kaur

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Give two differences between logical cohesion and coincidental cohesion.	2	CO4	BT2	1.3.1
	1(B)	Give two differences between hybrid and bottom-up design approaches.	2	CO4	BT2	1.3.1
	1(C)	Define decomposition of a system in one sentence.	2	CO4	BT1	1.3.1
	1(D)	State two differences between the COCOMO Model and the function point method.	2	CO3	BT2	1.3.1
	1(E)	Who should test a software project?	2	CO6	BT2	3.4.3
	1(F)	Name any two types of black box testing.	2	CO6	BT1	3.4.3
	1(G)	What is the aim of alpha testing performed on a project?	2	CO6	BT2	3.4.3
	1(H)	Give two reasons for why software does not wear out with time.	2	CO1	BT2	3.1.2
	1(I)	Why is high cohesion desirable? Give two reasons.	2	CO4	BT2	1.3.1
	1(J)	Give two differences between the semi-detached and the embedded project development modes with respect to the COCOMO Model.	2	CO3	BT2	1.3.1

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Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-B	Q2(A)	Compute the estimates of effort, duration, productivity and average staffing for a project of size 30KLOC using the COCOMO Model. Assume that the project is of embedded project development mode.	12	CO3	BT3	1.3.1
	2(B)	Explain the contents of a use case description of a single use case with the help of an example.	8	CO3	BT2	1.3.1
	Q3(A)	Draw a Context diagram and a top level data flow diagram for a restaurant management system.	12	CO4	BT3	1.3.1
	3(B)	Differentiate between a flowchart and a data flow diagram.	8	CO4	BT2	1.3.1
	Q4(A)	What levels of coupling and cohesion are most desirable? Explain the various types of coupling with an example for each.	8	CO4	BT1, BT2	1.3.1
	4(B)	Draw flowcharts for the following in a hospital management system: i) The process of adding a new doctor to the doctor-details table. ii) The process of storing treatment suggested by a doctor for a patient.	12	CO4	BT3	1.3.1
	Q5(A)	Give the relative merits and demerits of white box and black box testing. Explain the importance of each.	8	CO6	BT1, BT2	3.4.3

	5(B)	Consider the following program:
		#include<stdio.h>
		void main()
		{
		int a=5, b=9, sum1=0;
		sum1=a + b;
		if (sum1<=20)
		printf("The sum is less than 20.");
		else
		printf("The sum is greater than 20.");
		}
		a) Draw the control flow graph for the program
		b) Calculate the cyclomatic complexity of the program using all the methods
			12	CO5	BT3, BT3	3.3.1

********** END **********						

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DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY
"End Term Examination, May 2023"

Semester: 6th
Subject: Theory of Automata & Compiler Design
Branch: CSE
Course Type: Domain Core
Time: 3 Hour (01:00 –04:00PM)
Max.Marks: 100

Date of Exam: 22.05.2023
Subject Code: CSH 311 BT
Session: II
Course Nature: Hard
Program: B.Tech
Signature: HOD/Associate HOD

Note: All questions are compulsory in Part A, part B, Part C & Part D.

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PART-A [10]

S. No	Questions	Marks	CO	BT	PI
1(a)	Design Chomsky hierarchy for all kinds of automata.	2	CO1	L3	1.1.2
1(b)	How many number of parse trees will be designed for an input string "**aaa**" in the grammar: **S →Sa | aS | a**	2	CO3	L1	1.1.1
1(c)	Explain the functionalities of PDA and Turing Machine.	2	CO2	L2	2.1.2
1(d)	Differentiate between GNF and CNF.	2	CO2	L2	1.2.1
1(e)	Explain the functionalities of analysis part and synthesis part of compiler.	2	CO3	L2	1.1.3
1(f)	Differentiate between top down parser and bottom up parser?	2	CO3	L2	2.1.2
1(g)	For a Regular Expression: **01(1 + 0)*11** design a DFA.	2	CO1	L3	3.1.2
1(h)	Explain the basic concept of Item and Augmented grammar with example.	2	CO3	L2	1.1.3
1(i)	How many number of tokens present in the following code: **If (a > b) c = 0;**	2	CO1	L2	1.2.2
1(j)	Find the regular expression for the set of all strings over the input $\sum = \{1\}$ that has an even number of 1's.	2	CO5	L1	1.1.2

PART-B [10]

S.No	Questions	Marks	CO	BT	PI
2 (a)	The following grammar generates prefix expressions (S) with operands **m** and **n** and binary operators **+, - , and *:** **S → +SS | *SS | - SS | m | n** Design a Derivation tree for the string **+*-mnmn.**	5	CO2	L3	3.1.2

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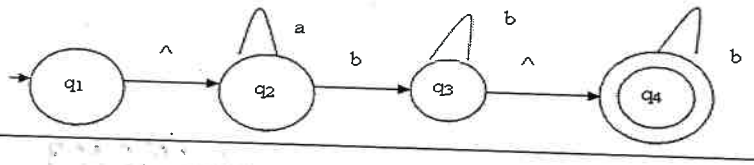
2(b)	Construct an NFA without ^ transition for a given NFA:  	5	CO1	L2	1.1.2

PART-C [40]

S.No	Questions	Marks	CO	BT	PI
3(a)	Consider a grammar **G** having production rules: **Statement → x | (Expression)** **Expression → Expression , Statement | Statement** Where terminals are **(,) , x** and **,** (i) To find left recursion free grammar **G'** (ii) To find FIRST set and FOLLOW set of grammar symbol of **G'.** (iii) To Design LL (1) Parsing table by using FIRST set and FOLLOW set.	15	CO3	L3	3.1.2
3(b)	Consider a grammar **G** having production rules: **X → YY** **Y → mY | n** To Design CLR (1) and LALR(1) parsing table	15	CO4	L3	1.1.2

PART-D [40]

S.No	Questions	Marks	CO	BT	PI
4(a)	Explain the concepts of shift- reduce conflict and reduce-reduce conflict in LR parsing with example.	10	CO5	L2	1.1.2
4(c)	To construct precedence relation table for the grammar rules: **S → a A c B e** **A → A b | d** **B → d**	10	CO5	L3	3.1.2
4(b)	What are the common techniques for improving the intermediate code? Explain any five of them.	20	CO5	L2	1.1.2

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DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

EVEN SEMESTER (JAN-2023)

END TERM EXAMINATION - MAY-JUNE 2023

COURSE NAME: Vulnerability Assessment and Penetration Testing	COURSE CODE: CSH330B-T	CREDIT:3	MAX. MARKS:60	TIME DURATION: 2 hours 1:00-4:00	DATE OF EXAM: 22.05.2023
PROGRAM: B.Tech		SEMESTER: CSTI6			SESSION: II
FACULTY NAME: Mr. Sujeet				NAME OF COURSE COORDINATOR: Dr. Sachin Lakra	

Note: All questions are compulsory.

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	In a system, you have found a vulnerability. Which vulnerability scoring system will you choose and why? Assume any missing data if required.	2	CO1	BT3	1.4.1
	1(B)	What is the difference between internal assessment and external assessment? Give a suitable example to support your answer.	2	CO1	BT2	1.3.1
	1(C)	Give the names of the active information-gathering tools and their features.	2	CO1	BT2	1.3.1
	1(D)	Write at least 5 basic commands in Linux and their functions.	2	CO1	BT1	1.4.1
	1(E)	Write a short note on aircrack-ng and it's command to crack a captured handshake.	2	CO1	BT2	1.4.1
	1(F)	What are the different cloud deployment models? Which deployment model will you choose for your needs?	2	CO1	BT2	1.3.1
	1(G)	What is the rooting process and why is it harmful for smart phones?	2	CO1	BT3	1.4.1
	1(H)	Write short notes on 1. SQLmap 2. SQLninja	2	CO1	BT2	1.4.1
	1(I)	Write short note on John the Ripper and hashcat with their commands.	2	CO1	BT2	1.4.1
	1(J)	An ethical hacker is performing directory brute forcing with gobuster but due to some technical reason, it's not working anymore. So can you suggest any other tool to perform this task?	2	CO1	BT3	1.3.1
PART-B	Q2	What do you understand by the term Injection attack? Briefly explain all types of attacks that come under this with suitable examples.	10	CO2	BT2	1.4.1
	Q3	Give a brief introduction to Cloud Computing, its characteristics and limitaitons with suitable examples.	10	CO3	BT2	1.3.1
	Q4	Briefly explain all types of cryptography attacks possible in real-life scenarios. What are the countermeasures we can take to evade them?	10	CO4	BT3	1.3.1
	Q5	What are the steps we can take to secure android devices. Give a suitable real life scenario to support your answer.	10	CO4	BT3	1.4.1

********** END **********

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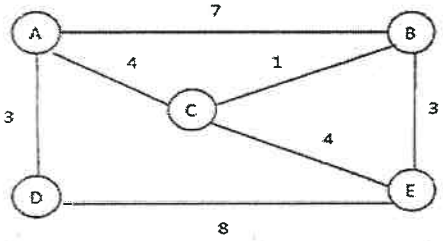
DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY.

"End Term Examination, Jun-2023"

SEMESTER	4th CDA CSTI 6th AIML	DATE OF EXAM	22.05.2023
SUBJECT NAME	COMPUTER NETWORK	SUBJECT CODE	CSH301B-T
BRANCH	CDA CSTI AIML	SESSION	I
Duration	150min (9:00 – 11.30AM)	MAX. MARKS	75
PROGRAM	B.TECH [CDA CSTI AIML] CSE	CREDITS	4CDA :4 4CSTI:5 6AIML:4
NAME OF FACULTY	Ms. Gunjan,Dr. Manoj,Mr. Narender	NAME OF COURSE COORDINATOR	Ms. Gunjan

Note:All Questions are compulsory in each part

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Show the generation of codeword at the sender site and check the same at the receiver site using CRC where data word is 1010011010 and the deviser is 10111.	2	CO2	BT2	2.1.1
	1(B)	Explain IEEE 802.3 data frame format.	2	CO2	BT2	2.1.1
	1(C)	Given 1101011011 data frame and generator polynomial G(x) = x4 + x + 1. Derive the transmitted frame.	2	CO1	BT1	1.3.1
	1(D)	For 7 devices in a network, what is the number of cable links required for a mesh, ring, bus, and star topology?	2	CO2	BT1	1.1.3
	1(E)	Explain character stuffing and bit stuffing for framing.	2	CO1	BT1	1.1.2

PART-B	Q2(A)	Discuss the IPv4 packet header format with diagram. Consider an IPv4 datagram has arrived with the following information in the header (in hexadecimal): Ox 46 00 00 54 00 03 58 50 20 06 00 00 7C 4E 03 02 B4 OE OF 02. Calculate the following parameters: 1. What is the size of the option field? 2. Is the packet fragmented? 3. What is the size of the actual data? 4. How many more routers can the packet travel to? 5. What is the Source address?	10	CO3	BT3	1.3.1
PART-C	Q3(A)	An organization is granted an address with beginning address 172.16.26.0/24. The organization need to have 12 subnets as shown below:Three subnets, each with 4 addresses. • Two subnets, each with 16 addresses. • Six subnets, each with 32 addresses. • One subnet, each with 64 addresses. Design the appropriate diagram for subnets.	10	CO2	BT2, BT3	1.2.2
	3(B)	Discuss the steps for Link state Routing. Consider the image given below and show the Routing table for node D, and E using Link State Routing Protocol. 	10	CO2, CO5	BT2,BT3	2.1.2
	Q4(A)	Discuss the frame format for UDP. Differentiate between TCP and UDP.	10	CO2, CO3	BT2	1.2.1
PART-D	Q5(A)	Explain internetworks switching. Differentiate the Circuit switching and Packet switching.	10	CO4	BT2	2.1.2
	5(B)	Explain VLAN in detail along with its advantages and disadvantages.	10	CO4	BT2	2.1.2
	6(A)	Write short notes on : 1. DNS 2. HTTP	5	CO5	BT1	2.3.1

********** END **********

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DEPARTMENT OF COMPUTER SCEINCE AND ENGINEERING

"End Term Examination, Jan-June-2023"

SEMESTER	**AIML6/ CSTI6/CDA6**	**DATE OF EXAM**	24.05.2023
SUBJECT NAME	**ADVANCED JAVA**	**SUBJECT CODE**	**CSH308B-T**
BRANCH	**AIML/CSTI/CDA**	**SESSION**	II
TIME	3 Hrs (01:00 – 04:00PM)	**MAX. MARKS**	**100**
PROGRAM	**B.Tech**	**CREDITS**	**2**
NAME OF FACULTY	**Dr. RANJNA JAIN/ Ms. GUNJAN**	**NAME OF COURSE COORDINATOR**	**Dr. RANJNA JAIN**

Note: Part A & Part B: All questions are compulsory.

Marking Key

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	What is the function of Driver in JDBC?	2	CO1	BT2	1.4.1
	1(B)	How Generics works in Java?	2	CO2	BT2	1.1.2
	1(C)	Discuss the functionality of Lambda Expression.	2	CO2	BT2	1.1.1
	1(D)	When servlet object is created?	2	CO3	BT2	1.3.1
	1(E)	What is the use of Page Directive tag in JSP?	2	CO4	BT2	1.4.1
	1(F)	What is the purpose of Deployment Descriptor File in Servlet?	2	CO3	BT2	1.1.2
	1(G)	Differentiate between Servlet and CGI.	2	CO3	BT2	1.1.1
	1(H)	What are the JSP implicit objects?	2	CO4	BT2	1.3.1
	1(I)	What is JAR file?	2	CO2	BT1	1.4.1
	1(J)	Differentiate between Stub and Skeleton objects.	2	CO2	BT2	1.1.2
PART-B	2(A)	What is the purpose of HttpServletRequest and HttpServletResponse Interface? Write the Java code to showcase its working.	5	CO3	BT3	1.1.1
	2(B)	Explain the steps to connect to the database in Java.	5	CO1	BT2	1.3.1
	3(A)	Explain the internal working of HashSet in detail.	5	CO2	BT2	1.4.1

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3(B)	Explain the architecture of MVC design pattern.	5	CO6	BT2	1.3.1
4(A)	What are Struts and explain the various features of Struts?	10	CO5	BT2	1.3.1
4(B)	What are some of the advantages of using JSP? Design Login Form using JSP which redirects to home page or else redirects to an error page.	10	CO4	BT3	1.3.1
5(A)	What is session tracking? Write the java code to demonstrate the working of session tracking using URL rewriting method.	10	CO4	BT3	1.4.1
5(B)	Explain the Client Server Architecture using Socket programming with the help of an example.	10	CO2	BT3	1.3.1
6(A)	Explain the concept of Java Bean. Create a Java Bean class called "ToDoItem" that has the following properties: • Id(String): unique identifier of the item • Title (String):title of the item • Description(String): a brief description of the item • dueDate(Date): the due date of the item • completed(Boolean):whether or not the item is completed. Implement the necessary getters and setters for each property. Write a sample code that creates an instance of the ToDoItem class and sets its properties and then retrieves and displays the values of the properties.	10	CO5	BT3	1.3.1
6(B)	Explain the Event Delegation Model in detail. Write the Java Code to demonstrate the working of the same.	10	CO1	BT3	2.4.1

********** END **********

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DEPARTMENT OF COMPUTER SCIENCE AND TECHNOLOGY

"End Term Examination, Jan-2023"

SEMESTER	**VI**	**DATE OF EXAM**	26.05.2023
SUBJECT NAME	**NETWORK SECURITY & CRYPTOGRAPHY**	**SUBJECT CODE**	CSH315B-T
BRANCH	**CSE**	**SESSION**	II
TIME	**3 hours** (01:00-04:00PM)	**MAX. MARKS**	**100**
PROGRAM	**B.TECH**	**CREDITS**	**3**
NAME OF FACULTY	**Dr.R. GIRIJA**	**NAME OF COURSE COORDINATOR**	**Dr.R. GIRIJA**

Note: *Part A : All questions are compulsory.*
Part B: All questions are compulsory

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Discuss the three security goals.	2	CO1	BT1	1.2.1
	1(B)	Define: a) Plaintext b) Ciphertext c) Encryption d) Decryption	2	CO1	BT1	1.2.1
	1(C)	Difference between Public Key Cryptosystems and Private Key Cryptosystems	2	CO2	BT1	1.2.1
	1(D)	Distinguish between Cryptography and Steganography.	2	CO1	BT2	2.2.4
	1(E)	Define the type of security attacks in each of the following case: a. A students breaks into a professor's office to obtain a copy of the next day's test. b. A student gives a check for $10 to buy a used book. Later she finds that the check was cashed for $ 100.	2	CO2	BT3	2.2.1

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	1(F)	Difference between Monoalphabetic cipher and Polyalphabetic ciphers.	2	CO1	BT1	1.4.1
	1(G)	What is the role of S-Box on AES.	2	CO2	BT2	1.3.1
	1(H)	What is a firewall in computer network?	2	CO2	BT2	2.3.1
	1(I)	Draw the architecture of triple DES algorithm.	2	CO3	BT2	1.2.1
	1(J)	Define Avalanche Effect.	2	CO3	BT2	1.2.1
PART-B	Q2(A)	Explain why modes of operation are needed if modern block ciphers are to be used for encipherment. And also list all modes of operation with figure.	10	CO4	BT2	2.3.1
	2(B)	Key exchange is based on the prime number q= 353; α=3. User A and User B select Secret keys Xa= 97 and Xb=233. Each computes its Public key. After exchange the public keys, secret key is calculated. 1. Calculate the each user public key 2. Also calculate, common secret key.	20	CO3	BT3	4.1.1.
	Q3(A)	Draw the architecture of AES algorithm. Also mention the AES parameters which is given below: 1. Key size. 2. Plaintext lock size 3. Number of Rounds 4. Round key size 5. Expected Key size	5	CO3	BT2	3.4.1
	3(B)	If the state is 87 F2 4D 97 EC 6E 4C 90 4A C3 46 E7 8C D8 95 A6 Perform shift rows transformation in AES algorithm, and compute the next state.	5	CO3	BT3	1.1.2
PART-C	Q4(A)	How does the firewall protect the data? List the types of firewall. And discuss in detail.	15	CO3	BT2	1.4.1
	4(B)	Explain the MD5 Algorithm in detail	10	CO3	BT2	2.1.1
	Q5(A)	Write the case study of phishing and pharming attacks.	15	CO5	BT2	4.1.2

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DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

"End Term Examination, Jan.-June 2023"

SEMESTER	VI	DATE OF EXAM	30.05.2023
SUBJECT NAME	Software Testing	SUBJECT CODE	CSH405B-T
BRANCH	CSE	SESSION	II
DURATION	2.5 hours (01:00 – 3.30PM)	MAX. MARKS	75
PROGRAM	B.Tech. CSE	CREDITS	3
NAME OF FACULTY	CSE6A, 6B Mr. Ram Chatterjee	NAME OF COURSE COORDINATOR AUTHORIZED SIGNATORY	Mr. Ram Chatterjee

Note: Part A, B: All questions are compulsory. Questions are of short answer type.
Part C, D: All questions are compulsory. Questions are of descriptive type.

	Q.NO.	QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	Which type of testing is justified by the statement "Are we building the product right?"	1	CO1	BT1	1.4.1
	1(B)	What does the V model emphasize in software development?	1	CO1	BT1	1.4.1
	1(C)	What does code tuning improve?	1	CO1	BT1	1.4.1
	1(D)	What is exploratory testing also known as?	1	CO1	BT1	1.4.1
	1(E)	How many test cases do you design in BVA?	1	CO1	BT1	1.4.1
	1(F)	What is the approach of black box testing (External/Internal)?	1	CO1	BT1	1.4.1
	1(G)	What is the limitation of black box testing?	1	CO1	BT1	1.4.1
	1(H)	What is the objective of white box testing (Design/Code)?	1	CO1	BT1	1.4.1
	1(I)	What is the advantage of white box testing?	1	CO1	BT1	1.4.1
	1(J)	What is the advantage of equivalence class testing?	1	CO1	BT1	1.4.1
PART-B	Q2.	In context of basis path testing answer the following? (a) Which type of testing technique is it (white box/black box)? Justify. (b) What does cyclomatic complexity indicate? (c) What are independent paths? (d) In how many ways can you calculate cyclomatic complexity?	5	CO2	BT2	3.2.1

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		(e) How can you reduce the flow graph?				
PART-C	Q3.	In context of debugging techniques answer the following: (a) Which technique would you use for debugging simple programs wherein you would load the code with print statements to print intermediate values, to find the bug? (b) Which technique would you use for debugging by starting with the output and working backwards to identify the cause of the bug? (c) For which type of algorithms the debugging technique stated in (b) is effective? (d) Which technique would you use for debugging by systematically ruling out potential causes of a bug until the true cause is identified? (e) For which type of software systems the debugging technique stated in (d) is most effective and efficient?	10	CO2	BT3	2.1.
	Q4.	Suppose you are working on a project to develop a new e-commerce website. You are responsible for testing the checkout process, which involves adding products to the cart, entering shipping and billing information, and completing the payment. In the given context implement object-oriented testing for this scenario: (a) Identify the key objects involved. (b) Create test cases for each of these objects to ensure that they function correctly and interact with each other in the expected way.	10	CO2	BT3	3.2.2
	Q5.	What are some common challenges that arise during object-oriented testing in context of the following? (a) Objects (b) inheritance (c) Binding	10	CO3	BT3	2.1.1
PART-D	Q6.	Differentiate between Selenium and QTP.	10	CO2	BT2	1.3.1
	Q7.	In context of Selenium IDE answer the following: (a) Which type of tool is it and under which tool suite is it counted? (b) What is the other name of selenium commands? (c) Which component display user interactions recorded by the IDE? (d) Which component specifies the web element on which the operation has to be performed? (e) Which component is an optional field and can be used when we need to send some actual parameters?	10	CO3	BT3	1.4.1
	Q8.	Write the Selenium WebDriver commands (with examples) for: (a) Fetching a web page. (b) Locating search text box and sending search text. (c) Performing click event. (d) Navigating backward in browser history. (e) Refresh/Reload a web page.	10	CO3	BT3	3.2.4

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DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY

"End Semester Examination, June 2023"

SEMESTER	II	**DATE OF EXAM**	05.06.2023
SUBJECT NAME	Programming for Problem Solving using C	**SUBJECT CODE**	**CSH101B-T**
BRANCH	ME	**SESSION**	II
TIME	**3 hrs** (01:00 PM – 04:00 PM)	**MAX. MARKS**	**100**
PROGRAM	B.Tech	**CREDITS**	**4**
NAME OF FACULTY	**Ms. Noopur**	**NAME OF COURSE COORDINATOR**	**Ms. Noopur**

***Note**: All questions are compulsory.*

S. No.	QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
Q1(a)	Define the input and output statements in C.	2	CO1	*BT1*	*1.4.1*
Q1(b)	What is the difference b/w a constant and a variable ?	2	CO1	*BT2*	*1.4.1*
Q1(c)	Write a program to find whether the number entered by a user is negative or positive.	2	CO1	*BT3*	*2.1.3*
Q1(d)	Evaluate the following expression If x=20 intially Y= x++ + ++x ;	2	CO1	*BT3*	*1.4.1*

Q1(e)	Find the output of the following code snippet:
	main ()
	{
	int a,b;
	a=12;
	b=a++ / 2;
	printf("%d", b);
	return 0;
	}
		2	CO1	*BT3*	*2.1.3*

Q1(f)	What are system defined functions and user defined functions? Give examples.	2	CO1	*BT2*	*1.4.1*
Q1(g)	Explain the difference between while and Do while loop.	2	CO1	*BT2*	*1.4.1*
Q1(h)	State the difference b/w break and continue statement.	2	CO1	*BT2*	*1.4.1*

Q1(i)	Give the output of the following C code:
	void main()
	{
	int x = 4=2%-8
	printf("Value of x is %d", x);
	}
		2	CO1	*BT3*	*2.1.3*

Q1(j)	What is if else statement? Illustrate.	2	CO1	*BT2*	*1.4.1*
Q2	a) Write a function to write table of a number entered by the user. b) Write a program to declare structure employee having data member as emp_name, emp_id, emp_sal. Accept this data for 3 employees and display it.	(10+10)	CO2 CO2	BT3 BT3	2.1.3 2.1.3
Q3	a) Differentiate between call by valued and call by reference. Write a program to swap the value of two integers using call by value and write its output. b) What is dynamic memory allocation? Explain the functions Malloc( ) , Calloc( ), Realloc( ), free.	(10+10)	CO3 CO3	*BT3* *BT3*	*2.1.3* *2.1.3*
Q4	a) What is a recursive function? Write a program to find the factorial of a number using a recursive function. b) Write a program to multiply two matrices and store the result in the third matrix.	(10+10)	CO3 CO2	*BT3* *BT2*	2.1.3 2.1.3
Q5	a) Explain the functions fopen( ),fgetc( ),fclose( ),fputc( ), fputs ( ). b) Explain different file opening modes.	(10+10)	CO4 CO4	*BT2* *BT2*	*1.4.1* *2.1.3*

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Department of Computer Science & Technology

"End Term Examination, June-2023"

SEMESTER	**II**	**DATE OF EXAM**	05.06.2023
SUBJECT NAME	**Introduction to Data Structures**	**SUBJECT CODE**	CSH112B
BRANCH	**ECE**	**SESSION**	II
TIME	**3 Hrs (01:00 – 4:00PM)**	**MAX. MARKS**	**100**
PROGRAM	**B. Tech**	**CREDITS**	**4**
NAME OF FACULTY	**Dr. Harsh Bhasin**	**NAME OF COURSE COORDINATOR**	**Dr. Harsh Bhasin**

***Note**: All questions are compulsory*

Q.NO.		QUESTIONS	MARKS	CO ADDRESSED	BLOOM'S LEVEL	PI
PART-A	1(A)	What is a Binary Search Tree? What are the advantages of this tree?	2	CO3	BT2	2.1.2
	1(B)	Explain the Big O asymptotic notation. Find Big O for f(n) = 4*n*n + 2*n + 3	2	CO2	BT3	2.1.2
	1(C)	You need to insert an element at the end of an array. What will be the complexity?	2	CO2	BT3	2.1.2
	1(D)	How will you count the number of elements in a singly linked list.	2	CO2	BT3	2.1.2
	1(E)	Differentiate between linear and non-linear data structures,	2	CO1	BT2	2.1.2
PART-B	2(A)	Write an algorithm for partition ? State the complexity of the algorithm.	5	CO2	BT2	2.1.2
	2(B)	Write an algorithm to add an element at the beginning of a linked list.	5	CO2	BT2	2.1.2
	3(A)	a) Write an algorithm to convert an infix expression to prefix. b) Convert the following expression to prefix and show each step: (a+b) - (c/d))	20	CO3	BT3	2.1.2

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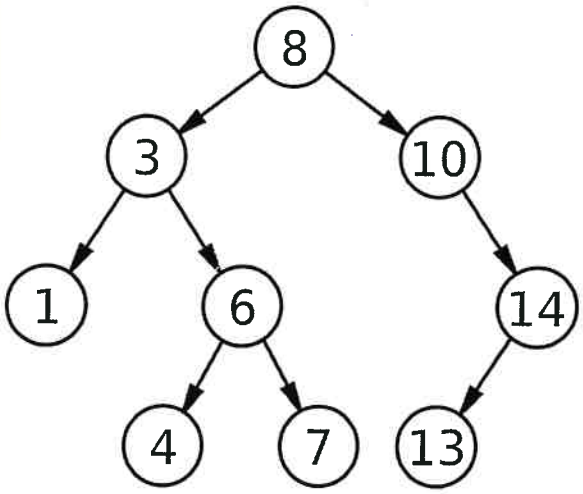
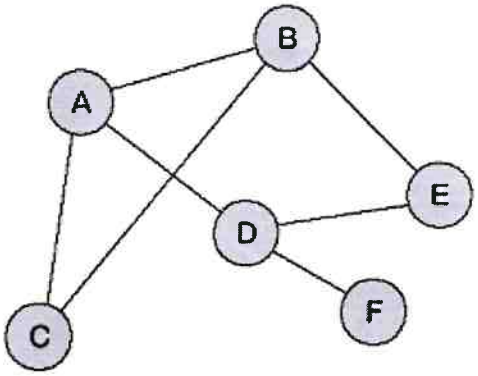
PART - C	3(B)	a) Write an algorithm to implement a stack using a linked list. b) How do you implement dequeue using arrays? Write algorithm.	20	CO3	BT2	2.1.2
	4(A)	a) Write the inorder, preorder and post order traversal of the following tree.  b) Create a Binary Search Tree from the following numbers: 6, 1, 2, 3, 8, 9, 10, 12, 89, 60 i) Delete 3 from the above tree. ii) Insert 18 to the above tree.	20	CO4	BT2	2.1.2
PART D	4(B)	a)What is the adjacency matrix and linked list representation of the following graph.  b) Write an algorithm for finding the shortest path using Prim's algorithm.	20	CO4	BT2	2.1.2

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